REMARKS - General

By the above amendment, applicant has amended the drawings, specification, and abstract to emphasize the novelty of the present invention.

Applicant has currently amended all of the claims to define the present invention more particularly and distinctly so as to overcome the technical objections and rejections and define the present invention patentably over the prior art references.

The Objection To The Drawings Objections

Applicant has amended the connection between the two switch units in Fig. 13 to show controlling of the two switch units. Fig. 13 is a detailed block diagram of 1210 as shown in Fig. 12. In Fig. 12, the block "1210" is controlled via the control line by the block of W-CDMA and UWB OFDM multiband control processor labeled "1240". Thus, the control line to 1240 is not a new addition for Fig. 13. Accordingly, applicant submits that the drawings comply with Examiner's requirements and therefore requests reconsideration and withdrawal of the objections.

The Objection To The Double Patenting Is Overcome

The office action rejected the claims 1, 2, 3, 9, 16, and 18 as a double patenting over the U.S. Patent No. 7,133,646.

Applicant has amended the claims 1, 3, 16 and 18 and cancelled the claims 2 and 9, which are now different from the claims in the U.S. Patent No. 7,133,646. Accordingly, applicant submits the amended claims and therefore requests reconsideration and withdrawal of the double patenting objection.

The Rejection Of The Claims 4, 7 and 8 Under 35 USC 112 Is Overcome

The office action rejected the claims 4, 7 and 8 under 35 USC 112.

Applicant has currently amended the claims 4, 7 and 8 so that the rejections under USC 112 can be overcome. Accordingly, applicant submits the amended claims 4, 7 and 8, and therefore requests reconsideration and withdrawal of the rejection under 35 USC 112.

The Rejection Of The Claims 1, 19-21, 23-25 over Souisse (2002/0102987) in View of Medvedev (6,862,271) Under 35 USC 103(a) Is Overcome

The office action rejected the claims 1, 19-21, 23-25 over Souisse (2002/0102987) in View of Medvedev (6,862,271).

Applicant has amended the claims 1, 21, 23-25, and cancelled the claims 19-20. Accordingly, applicant submits the amended claims 1, 21 and 23-25 and therefore requests reconsideration and withdrawal of the rejection under 35 USC 103(a).

The Rejection Of The Claim 2 over Souisse (2002/0102987) in View of Medvedev (6,862,271) and further in View of Feher (6,470,055) Under 35 USC 103(a) Is Overcome

The office action rejected the claim 2 over Souisse (2002/0102987) in View of Medvedev (6,862,271) and further in View of Feher (6,470,055).

Applicant has cancelled the claim 2. Accordingly, applicant requests reconsideration and withdrawal of the rejection under 35 USC 103(a).

The Rejection Of The Claims 3, 5, and 6 over Souisse (2002/0102987) in View of Medvedev (6,862,271) and further in View of Feher (6,470,055) and further in View of Hasler (6,351,236) Under 35 USC 103(a) Is Overcome

The office action rejected the claims 3, 5, and 6 over Souisse (2002/0102987) in view of Medvedev (6,862,271) and further in view of Feher (6,470,055) and further in view of Hasler (6,351,236).

Applicant has amended the claims 3 and 6, and cancelled the claim 5. Accordingly, applicant submits the amended claims 3 and 6, and therefore requests reconsideration and withdrawal of the rejection under 35 USC 103(a).

The Rejection Of The Claim 9 over Souisse (2002/0102987) in View of Medvedev (6,862,271) and further in View of Feher (6,470,055) and further in View of Maeda (6,195,400) Under 35 USC 103(a) Is Overcome

The office action rejected the claim 9 over Souisse (2002/0102987) in view of Medvedev (6,862,271) and further in view of Feher (6,470,055) and further in view of Maeda (6,195,400).

Applicant has amended the claim 9. Accordingly, applicant submits the amended claim 9 and therefore requests reconsideration and withdrawal of the rejection under 35 USC 103(a).

The Rejection Of The Claim 14 over Souisse (2002/0102987) in View of Medvedev (6,862,271) and further in View of Abrishamkar (2001/0044313) and Kotzin (7,146,189) Under 35 USC 103(a) Is Overcome

The office action rejected the claim 14 over Souisse (2002/0102987) in view of Medvedev (6,862,271) and further in view of Abrishamkar (2001/0044313) and Kotzin (7,146,189).

Applicant has cancelled the claim 14. Accordingly, applicant requests reconsideration and withdrawal of the rejection under 35 USC 103(a).

The Three Reasons Of The Present Invention Is Different From The Prior-Art References

All of the currently amended claims 1, 3-4, 6-7, 10-13, 15-18, and 21-23, and the new claim 26 are to emphasize the novelty of the present invention and to define patentably over these prior-art references thereof. Applicant requests reconsideration of

these rejections, as now applicable to the amended claims 1, 3-4, 6-7, 10-13, 15-18, and 21-23 and the new claim 26 for the following three reasons:

(1) There are no justification, in Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar, and Kotzin, or in any other prior arts separate from applicant's disclosure, which suggest that these references be individual way in the manner proposed.

(2) Even if Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar, and Kotzin were in the manner proposed, the proposed methods would not show all the novel physical features of the currently amended claims 1, 3-4, 6-7, 10-13, 15-18, 21-23 and the new claim 26.

(3) These novel physical features of the amended claims 1, 3-4, 6-7, 10-13, 15-18, 21-23 and the new claim 26 produce new and unexpected results in such a way that proposed multiband MIMO-based W-CDMA and UWB communications operates in different methods and deals with different UWB signals in different situations that Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar, and Kotzin, or any other prior arts suggested, and therefore are novelty, unobvious and patentable over these prior-art references.

The References And Differences Of The Present Invention Thereover

In this section, applicant first discusses the prior-art references and the novelty of the present invention and its unobviousness over these prior-art references. Applicant then talks about the amended claims and the above three reasons.

Present Invention – The present invention is a next-generation multiband MIMO-based W-CDMA and UWB communications for wireless and/or local-area wireless communications. The present invention consists of a W-CDMA base station, an UWB base station, and *P*-user dual-mode portable stations of W-CDMA and UWB communication devices. The W-CDMA base station, which has a multicarrier for 12 channels with 15-MHz frequency bandwidth centered at 1.9-GHz frequency, employs four antennas at the transmitter and receiver. The UWB communication base station,

having a multicarrier for four frequency bands with 2.048-GHz frequency bandwidth from 3.1 GHz to 5.15 GHz, uses four antennas at the transmitter and receiver. Each of the frequency bands in the UWB communications has a 512-MHz frequency bandwidth employing an OFDM modulation. Each of the P-user dual-mode portable stations of W-CDMA and UWB communication devices uses two antennas, and common components, including A/D and D/A converters, memory, etc., thereby reducing cost. All of the dual-mode portable stations use a DSSS and OFDM along with the multiple antennas for multiuser. Thus, multiple access interference among the multiuser can be avoided. In addition, subcarriers within each of the UWB frequency bands can be turned on or off to avoid interference with other devices during an UWB mode. The multiple antennas also improve the W-CDMA and UWB capabilities of transmitting a very-high data rate in a much longer distance. Based on such as a novelty architecture, each of the P-user dual-mode portable stations of W-CDMA and UWB communication devices allows the W-CDMA to use twelve 1.25-MHz channels to transmit a data rate more than 2 Mcps and the UWB to use four 512-MHz frequency bands with the multicarrier-based OFDM to transmit a data rate up to 1.58 Gbps. As can be seen, the present invention, which utilizes both benefits of W-CDMA wireless phones and UWB wireless broadband communications, can not only transmit the packet data in a form of wireless phone but also use as a very-high speed wireless broadband Internet device to transmit and receive data, image, video, video-game, music, and stock charts, etc., with flexibility and scalability capability in a real-time.

Souisse et al. presented a method and apparatus for distributed data transfer over multiple independent wireless networks, including a MIMO-based dual-mode W-CDMA and UWB (Page3, paragraph 0033) filtering and multicarrier RF section (Fig. 9, 900 showing multiple input and output; page 1, paragraph 0009; Fig. 2 shows parallel multimode operation of a RF modem device/RF section, page 3, paragraph 0033); a 3G W-CDMA baseband processor (Fig 9, box 915, BB processor 1; Page 5, paragraph 0052, where each fragment received is processed according to selected physical layer specification; Fig. 6, Fig. 7; page 3, paragraph 0033); and a UWB OFDM multiband

baseband processor (Fig. 9, box 915, BB processor 2; page 5, paragraph 0052, where each fragment received is processed according to selected physical layer specification (OFDM, CDMA, GSM); page 3, paragraph 0033).

Souisse's Fig. 9, box 900 is a RF front-end based on multiple RF connected in parallel. Each RF front-end is used to up-convert a single baseband signal. Each RF front-end is an independent used for a standard-based signal. All of the standard-based signals are then added together for a signal antenna. Such a structure is constructed for simultaneous use of at least two of its compatible standard-based signals (Fig. 2, Page 3, paragraph 0033). The structure has to transfer all of different standard-based signals at the same time. Further note that Fig. 9, box 915, contains N BB processor in parallel. Each BB processor is independent used for a particular standard signal only. There are not any structures that are interconnected and have to operate at an independent way. Entire BB processors cannot be used each other. Thus, it is clear that Souisse's invention is not designed for a MIMO-based portable device.

Note that the present invention's filtering and multicarrier RF section uses N channel RF front-ends, but they are all interleaved and added together to form M signals for M antennas. In addition, the entire RF front-end either uses for W-CDMA or UWB for a transmission to enhance SNR for a transmitted signal. The present invention of the dual-mode transceiver not only have a MIMO-based dual-mode W-CDMA and UWB filtering and multicarrier, a W-CDMA baseband processor, an UWB multiband processor, a W-CDMA and UWB OFDM multiband control processor, and a sharing memory bank but also have all interconnections among all of the subsystems. Moreover, the subsystem structure and functions in the present invention are different from what Souisse's invention used. Therefore, the present invention is different from Souisse's invention.

Medvedev et al. disclosed a MIMO system with multiple transmission modes and shows a 3G W-CDMA and UWB OFDM multiband control processor (Fig., unit 330 and 370; Col. 21, line 48-67; Col. 22, lines 1-7) and a multiple antenna unit (Col. 1, lines 25-

41; Col. 3, lines 54-67; Col, lines 1-4). As can be seen, Medvedev's system is a MIMO OFDM rather than a dual-mode system of W-CDMA and UWB. The units 330 and 370 are a controller to control a TX data processor and a TX MIMO processor or a modulator. The controller is designed to control MIMO-OFDM only. Thus, the controller cannot be used to control the W-CDMA and UWB signals.

Note that the present invention of the W-CDMA and UWB OFDM multiband control processor is particularly designed for a dual-mode MIMO-based W-CDMA and UWB OFDM multiband operation. The W-CDMA and UWB OFDM multiband control processor is a dual controller, which has connected with a MIMO-based dual-mode W-CDMA and UWB filtering and multicarrier RF section, a W-CDMA baseband processor, an UWB multiband baseband processor, and a sharing memory bank. The W-CDMA and UWB OFDM multiband control processor not only needs to control the W-CDMA signal and multiband UWB signals but also has to control other systems, including the MIMO-based dual-mode W-CDMA and UWB filtering and multicarrier RF section, the W-CDMA baseband processor, the UWB multiband baseband processor, and the sharing memory bank. Furthermore, the present invention of the W-CDMA and UWB OFDM multiband control processor is able to control transmitted UWB signals to meet FCC spectrum requirements while Medvedev's controller is not able to do since Medvedev's controller is not designed for using UWB signals. Therefore, the present invention of the W-CDMA and UWB OFDM multiband control processor is different from what Medvedev's controller does.

Feher disclosed a spectrally efficient FQPSK, FGMSK, and FQAM for enhanced performance CDMA, TDMA, GSM, OFDN, and other systems. Feher shows a RF section, including two-LNA (Fig. 1A, box 116), two-AGC (Fig. 30, box 30.3; Col. 35, lines 51-60), two analog bandpass filters (Fig. 7, box 7.9 and 7.12; Fig. 1A, box 115), two dual-switch (Fig. 1A, unit 113; Fig. 2, unit 2.14 and 2.15; Col. 15, lines 8-11), a 3G W-CDMA down converter and demodulation (Fig. 37, box 37.3; Col. 13, lines 28-34), and

an UWB multiband down converter and demodulation (Fig. 37, box 37.5; Col. 13, lines 28-34), and an A/D unit (Fig. 31, box 31.3).

Note that Feher's two dual-switch (Fig. 1A, unit 113; Fig. 2, unit 2.14 and 2.15; Col. 15, lines 8-11) is used for a antenna rather than used for connecting between two analog bandpass filters and W-CDMA downconverter and demodulation and UWB multiband downconverter and demodulation, which the present invention does. Also, Feher's LNA (Fig. 1A, box 116) is used to connect with a BPF and a mixer rather than using for connecting with AGC as the present invention does. Feher's 3G W-CDMA downconverter and demodulation (Fig. 37, box 37.3; Col. 13, lines 28-34) is used to connect with a RF antenna and a combiner. Feher's UWB multiband downconverter and demodulation (Fig. 37, box 37.5; Col. 13, lines 28-34) is used for connecting between a RF antenna and the combiner. It is not designed for UWB operation. Thus, Feher's system cannot be used for a dual-mode portable W-CDMA and UWB.

Further note that the present invention of the W-CDMA downconverter and demodulation and UWB multiband downconverter and demodulation are used between two dual-mode switch units and an A/D unit, which contains 8 A/D converters with the same resolution and sampling rate. Therefore, the present invention is different from what Feher's invention does.

Hasler introduced a combined GPS and CDMA in a mobile transceiver, including a receiver where two dual-switch (Fig. 3, unit 18; Col. 4, lines 54-57) are to provide information from the analog bandpass filters (Fig. 3, unit 8 and 14) either to the W-CDMA downconverter and demodulation (Fig. 3, unit 9; Col. 4, lines 54-57) or to the UWB multiband downconverter and demodulation (Fig. 3, unit 17; Col. 4, lines 54-57).

Note that Hasler's invention is not designed using for UWB multiband communication since its transmitter cannot meet FCC spectrum requirements. In addition, Hasler's switch is a conventional switch rather than two dual-mode switch units as the

present invention does. Each dual-mode switch unit in the present invention contains two independent switches that are controlled to connect with two chains of antennas. Thus, the two dual-mode switch units in the present invention are able to form multiple antenna inputs either for the W-CDMA downconverter and demodulation or for the UWB multiband downconverter and demodulation. As can be seen, the present invention's two dual-mode switch units are different from what Hasler's switch used for GPS and W-CDMA operations.

Maeda presented a two-mode demodulating apparatus, including an A/D unit (Fig. 10, unit 29) having two switches (Fig. 10, unit 29C) and 8 A/D converters (Fig. 10, unit 29D). Maeda's A/D unit contains two sample-and-hold circuits, a circuit change switch coupled to an A/D converter rather than having two-switch units and 8 A/D converters as the present invention does. Further note that the present invention uses the two switch units to control using either for UWB operation or W-CDMA operation. During the W-CDMA mode, by using the two switch units, only two A/D converters are connected to operate a sampling rate at 540 MHz, which is 36 times oversampling rate for the W-CDMA signal. All of other A/D converters are rest. During the UWB mode, all of 8 A/D converters are operated with the same sampling rate by using the two switch units connecting UWB input signals. Thus, all of A/D converters in the A/D unit are necessary for the dual-mode W-CDMA and UWB operation. Therefore, the present invention's A/D unit is different from what Maeda's A/D unit does.

Abrishamkar disclosed wireless communications receiver employing a unique combination of quick paging channel symbols to facilitate detection of a primary paging channel and shows a 3G W-CDMA baseband processor having two digital filters (Fig. 2, unit 68), two down samplings (Fig. 2, unit 58), a MUX (Fig. 2, unit 72), and decoder unit (Fig. 2, unit 74).

Note that Abrishamkar's unit 68 is a pilot estimator rather than two digital filters as the present invention has. Abishamkar's unit 58 is a sample RAM that is not two down

samplings as the present invention has. Also, Abrishamkar's unit 72 is a demodulator, which is not a MUX as the present invention has. Abrishamkar does not mention a raker receiver in Fig. 2 as well. In addition, Abrishamkar has a different connection using these units as the present invention does. Therefore, the present invention is different from what Abrishamkar's invention does.

Kotzin invented an apparatus for wireless device to alter performance of wireless communication link and showed a baseband processor (Fig. 1, unit 110) having a rake receiver. Note that Kotzin mentioned a rake receiver but does not have any other subsystems (two digital filters, two down samplings, a MUX and decoder, etc) as the present invention does. In addition, Kotzin's invention structure is different from what the present invention does. Thus, the present invention is not the same as Kotzin's invention.

In summary, **Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar,** and **Kotzin** are arts but they are different from each other. Souisse et al. presented a method and apparatus for distributed data transfer over multiple independent wireless networks. Medvedev et al. disclosed a MIMO system with multiple transmission modes. Feher disclosed a spectrally efficient FQPSK, FGMSK, and FQAM for enhanced performance CDMA, TDMA, GSM, and OFDN systems. Hasler introduced a combined GPS and CDMA in a mobile transceiver. Maeda presented a two-mode demodulating apparatus. Abrishamkar disclosed wireless communications receiver employing a unique combination of quick paging channel symbols to facilitate detection of a primary paging channel. Kotzin invented an apparatus for wireless device to alter performance of wireless communication link. As can be seen, they are for individual different design methods and different communication systems. Applicant's invention is the multiband MIMO-based W-CDMA and UWB communications, which is a dual-mode communication portable device. It is especially designed not only for wireless W-CDMA operations but also for fixed wireless UWB communications that can meet the FCC UWB emission requirements. Additionally, applicant's invention has a set of novel

architectures that enable to transmit and receive W-CDMA and UWB at a very high data rate with scalability and programmability. Thus, applicant's invention produces new and unexpected performance over the prior-art references. Therefore, applicant's invention is fundamentally different from the prior-art reference's systems or any combination thereof. As a result, it is impossible and unobvious to one having ordinary skill in the art to develop the multiband MIMO-based W-CDMA and UWB communications even given the prior-art references.

Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar, And Kotzin Do Not Contain Any Justification To Support Individual, Much Less In The Manner Proposed

With regard to the individual inventions of Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar, and Kotzin, it has been shown that there are fundamentally differences between the applicant's invention and the individual inventions of the prior-art references as the applicant discussed above. The fact that all of the prior-art references either in individual or any combination form is not sufficient to gratuitously and selectively substitute parts of one reference for a part of another reference in order to meet the applicant's novel architectures and claims. This is because there are fundamental differences between the applicant's invention of the multiband MIMO-based W-CDMA and UWB communications and the prior-art references. Thus, it is invalid to use any prior-art references to reject the applicant's invention under 35 USC 103(a). Therefore, the applicant submits the fact that the multiband MIMO-based W-CDMA and UWB communications produces advantages militates in favor of the applicant because it proves that the applicant's invention produces new and unexpected results and hence is unobvious.

Therefore, the applicant submits that individual or any combination forms of Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar, and Kotzin are not legally justified and is therefore improper. Thus, the applicant submits that the rejection on these prior-art references is also improper and should be withdrawn.

Even If Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar, And Kotzin Were In The Manner Proposed, The Proposed Methods Would Not Show All The Novel Physical Features Of The Amended Claims.

However, even if any combination of Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar, and Kotzin were legally justified, the amended claims would still have novel and unobvious physical features over the proposed combination. In other words, the applicant's invention, as defined by the amended claims comprises much more than merely substitutes a plurality of templates to one template. Furthermore, there are fundamentally differences between the applicant's invention of the physical feature structures and expected results, and any combination of the prior-art references. It is also clear that the applicant's invention has novel and unobvious physical features over any prior-art references.

Thus, the applicant submits that the present invention of the multiband MIMO-based W-CDMA and UWB communications is much more than merely substituting a plurality of templates for one template and that the amended claims clearly recite novel physical subject matter, which distinguishes over individual or any possible combination of the prior-art references.

The Novel Physical Features Of the Amended Claims Produce New And Unexpected Results And Hence Are Unobvious And Patentable Over These References Under 35 U.S.C. 103.

The applicant also submits that the novel physical features of the amended claims are unobvious and hence patentable under 35 U.S.C. 103 since they produce new and unexpected results over Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar, And Kotzin or any combination thereof.

These new and unexpected results are the ability of the applicant's invention of the multiband MIMO-based W-CDMA and UWB communications in a single dual-mode

portable device, thereby achieving co-existence with multiple communication devices in the same environments.

Therefore, the applicant's invention of the multiband MIMO-based W-CDMA and UWB communications is a novel and vastly superior to that Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar, and Kotzin or any possible combination thereof. The novel physical features of the applicant's invention that affects these differences are, as stated, clearly recited in the amended claims.

The Dependent Claims Are A Fortiori Patentable Over Souisse, Medvedev, Feher, Hasler, Maeda, Abrishamkar, And Kotzin

The amended dependent claims incorporate all the subject matter of the amended independent claims and add additional subject matter that makes them a fortiori and independently patentable over these prior-art references. Accordingly, the applicant submits that the amended dependent claims are a fortiori patentable and should also be allowed.

Conclusion

For all the reasons given above, the applicant respectfully submits that the drawing sheets, specification, abstract, and claims are in proper amended form, and that the amended claims all define patentable over the prior-art references. Therefore, the applicant submits that this application is now in full condition for allowance, which action applicant respectfully solicits.

Conditional Request For Constructive Assistance

The applicant has currently amended the drawing, specification, abstract, and rewritten the amended claims of this application so that they are proper, definite, and define novel physical feature structure, which is also unobvious. Therefore, this application is submitted that patentable subject matter is clearly present. If, for any reason this application is not believed to be in full condition for allowance, the applicant

respectfully requests the constructive assistance and suggestions of Examiner pursuant to M.P.E.P. Section 2173.02 and Section 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,

George J. Miao

---------- Applicant Pro Se ----------

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Date: August 4, 2007

Inventor's Signature: